(12) UK Patent Application (19) GB (11) 2 116 522 A

(21) Application No 8307373
(22) Date of filing 17 Mar 1983
(30) Priority data
(31) 8207801
(32) 17 Mar 1982
(31) 8209555
(32) 31 Mar 1982
(33) United Kingdom (GB)
(43) Application published
28 Sep 1983
(51) INT CL³
G01F 11/26
(52) Domestic classification
B8N L
(56) Documents cited
GB A 2093804
(58) Field of search
B8N
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(54) Dispensing container for liquids

(57) A liquid dispensing container blow-moulded with a reservoir 1 and a measuring chamber 2, connected by a duct 3, for measuring and dispensing by successive tilting movements, has a single mouth 4 in alignment with a reservoir throat 10 closed by a plug 9, inserted through the mouth. The plug may simply close the throat or may be a valve to control fluid flow between the reservoir, the chamber and the mouth.

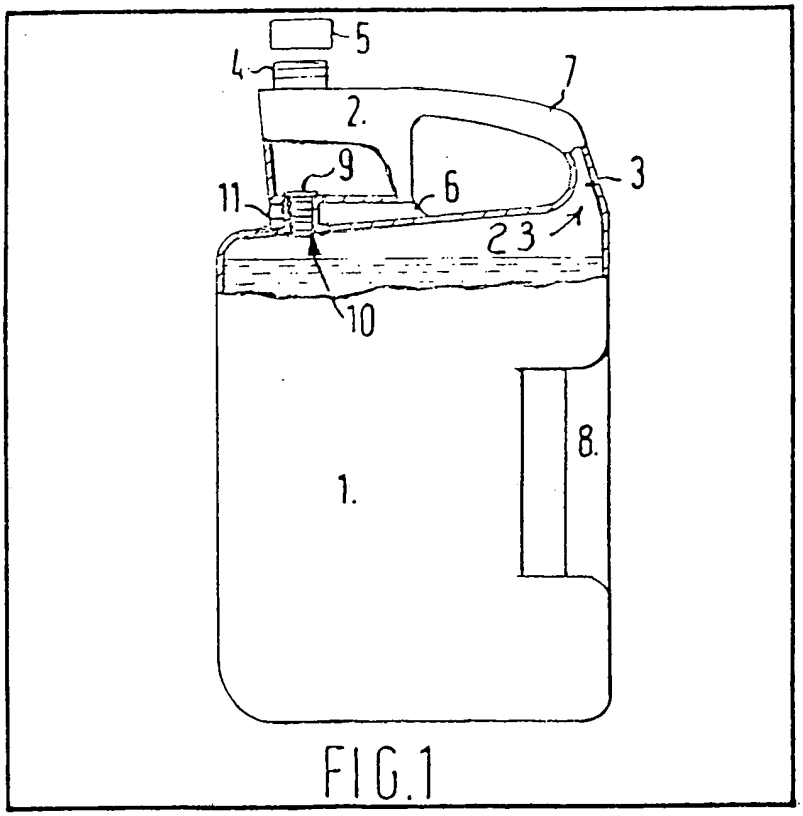

FIG.1

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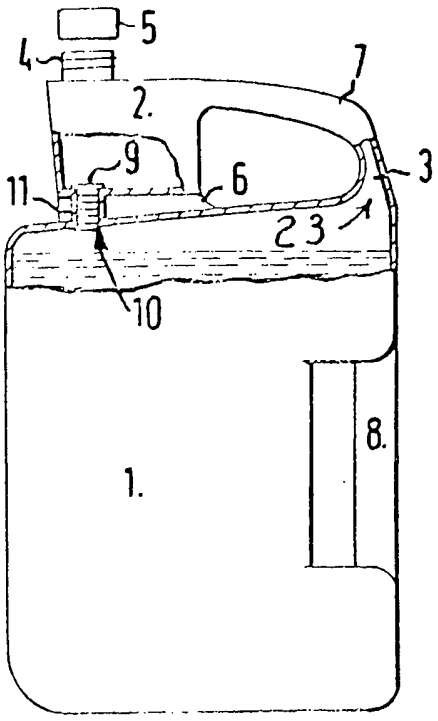

FIG.1

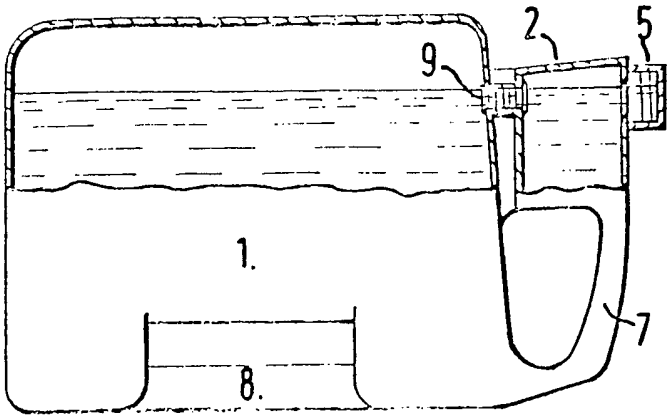

FIG.2

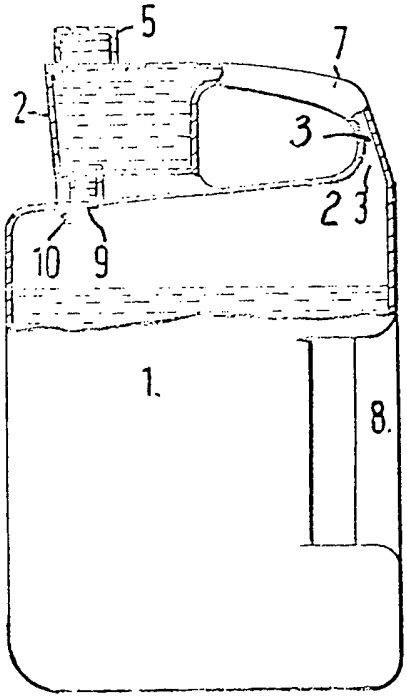

FIG.3

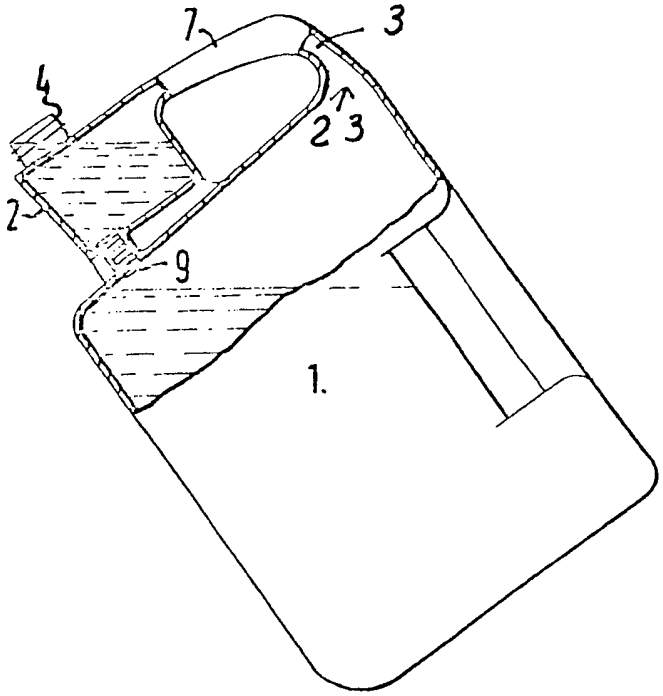

FIG.4

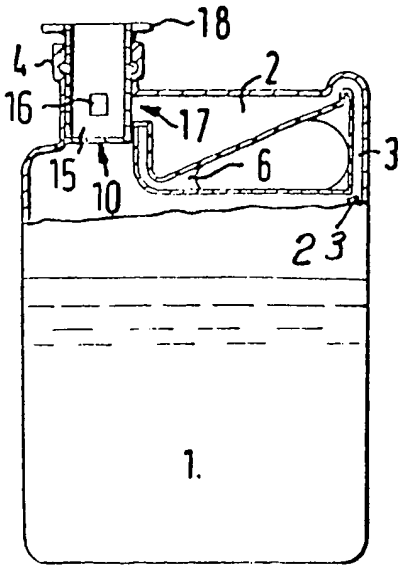

FIG.5

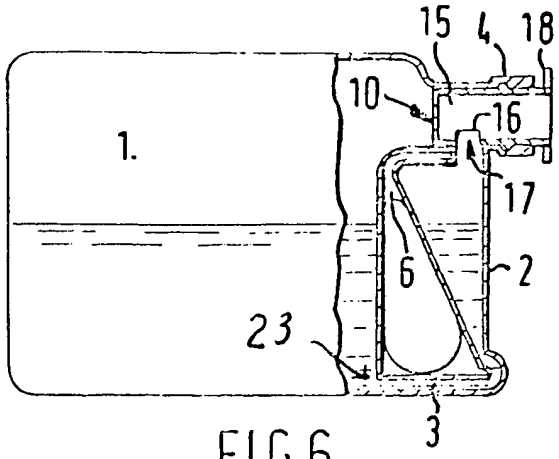

FIG.6

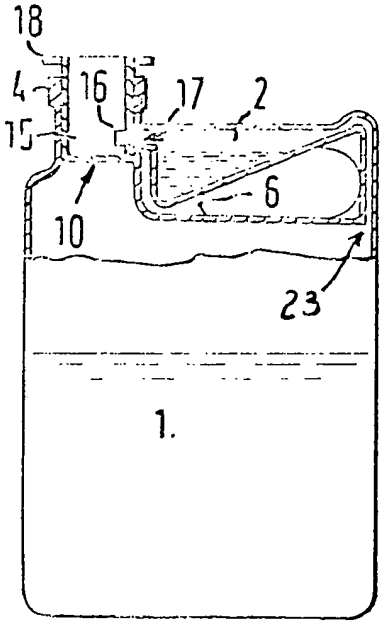

FIG.7

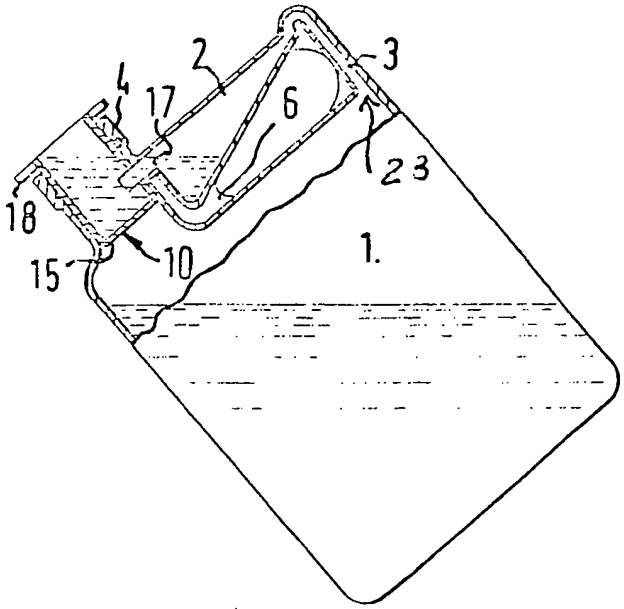

FIG.8

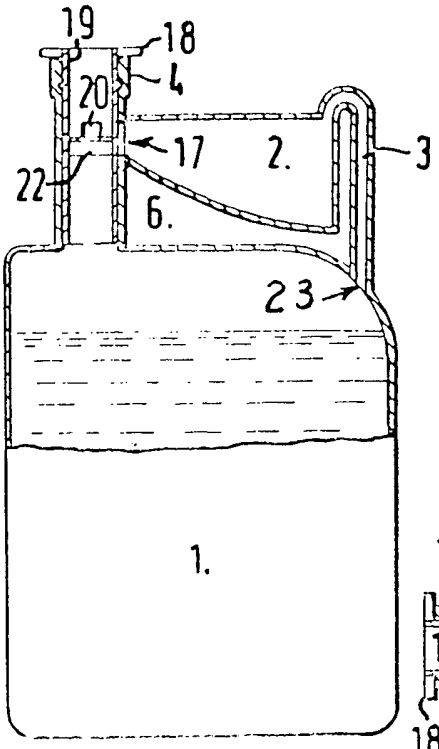

FIG.9

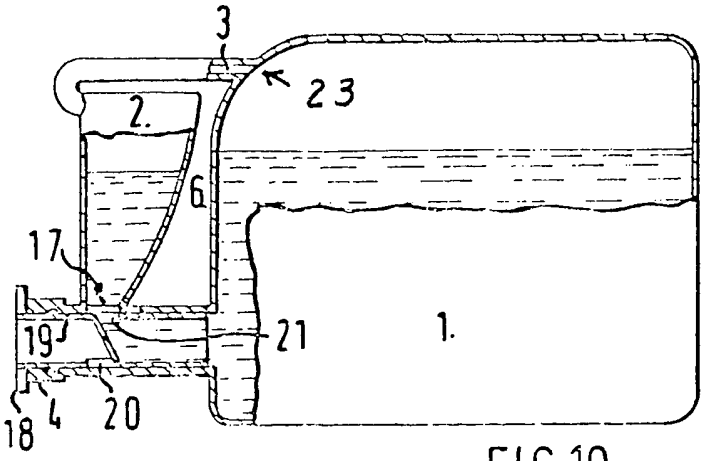

FIG.10

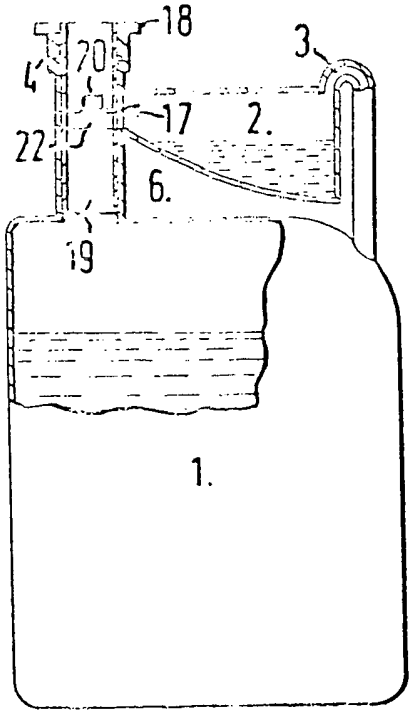

FIG.11

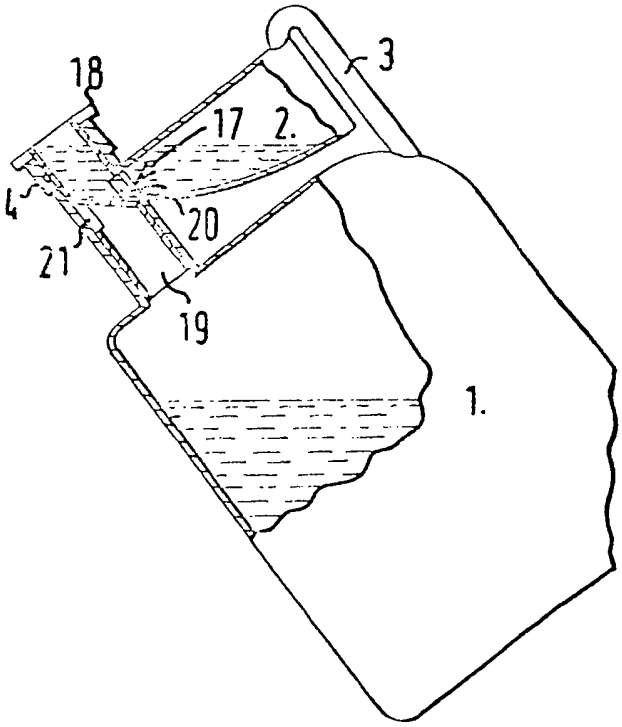

FIG.12

SPECIFICATION

Dispensing container for liquids

This invention relates to a dispensing container for liquids having a reservoir, to hold a bulk quantity of liquid, in communication with a measuring and dispensing chamber to which liquid can be transferred and from which the liquid can then be poured.

The invention is applied to a known kind of liquid dispensing container comprising, as a single moulding, a reservoir and a measuring chamber connected by a fluid transfer duct so that, by appropriate successive tilting movements of the container, liquid can be transferred from the reservoir to the chamber and can then be dispensed by pouring.

According to the invention, the container has a single mouth, for filling and dispensing, the reservoir has a throat in alignment with the container mouth and a plug inserted through the mouth into the throat controls fluid communication through the throat between the reservoir and the chamber.

The plug may be a simple stopper which, after the reservoir has been filled, is inserted into the throat to close it so that thereafter, by appropriate tilting of the container, liquid can be transferred through the transfer duct to the chamber, adjusted to a measured level and then dispensed by pouring from the mouth of the container.

Alternatively the plug may be a valve which, according to its angular position, prevents or permits passage of fluid, which may be liquid or air, through the throat between the reservoir and the chamber and between the chamber and the mouth.

Embodiments of the invention are illustrated, by way of example, on the accompanying drawings, in which:—

Figs. 1 to 4 are sectional side elevations, showing successive positions in use, of a container with a simple closure plug in the throat;

Figs. 5 to 8 and Figs. 9 to 12 are respectively corresponding sets of views of two containers with different forms of rotary valve plug in the respective container throat.

The containers shown are blow-moulded each from a tubular parison of plastics material placed between a pair of dies and then inflated to espouse the cavity formed by joint internal configuration of the closed dies of which closely opposed parts define web portions between the hollow parts of the moulding. Such blow-moulding is a well-known technique.

The container shown by Figs. 1 to 4 comprises a reservoir 1, a measuring chamber 2, a transfer duct 3, for liquid to flow between the reservoir and chamber when the container is suitably tilted, a mouth 4 and a closure cap 5.

The container is moulded with opposed and interwelded web portions 6, a tubular top handle 7, through which the duct 3 extends, and a tubular side handle 8 which provides part of the capacity of the reservoir.

After the reservoir has been filled with liquid, a plug 9 is inserted through the mouth 4 to close the throat 10 of a neck 11 between the reservoir 1 and chamber 2. The plug 9 may be removable but is preferably a permanent closure so as to reduce the likelihood of the container being re-used for noxious liquid.

It is believed that the operation of using the container will be evident from the sequence of Figs. 1 to 4. In Fig. 2 the container has been tilted clockwise to fill the chamber 2, the cap 5 being vented as necessary to permit this. In Fig. 3 the container has been restored to its upright position, so that the liquid in the chamber 2 levels to the height of the duct 3, and in Fig. 4 the cap 5 has been removed and the liquid is being dispensed by tilting the container anti-clockwise to pour liquid through the mouth 4.

Quantities less than the maximum capacity of the chamber 2 can be dispensed by limited clockwise tilting of the container and the wall of the chamber 2 may be graduated to indicate the levels for partial doses.

In the embodiment shown by Figs. 5 to 6 parts corresponding to those of the embodiment of Figs. 1 to 4 have the same reference numerals. In this case the chamber 2 serves as a top handle.

A cup-shaped rotary valve plug 15 closes the throat 10 of the neck 11 but has a port 16 in its side wall to match up with a port 17 between the chamber 2 and the mouth 4.

The valve plug 15 is a liquid-tight fit in the mouth 4 and, by means of a knurled peripheral flange 18, can be turned to bring its port 16 into and out of register with the chamber port 17. The valve plug 15 serves as a container closure, so that a cap is not required, but a tear-off sealing capsule (not shown) or other initial closure may be provided.

The sequence of operation shown by Figs. 5 to 8 is as follows. In Fig. 5 the container is upright and closed by the valve plug 15. In Fig. 2, the valve plug 15 has been turned to register the port 16 with the port 17, so that the mouth 4 is vented, and the container tilted clockwise to transfer liquid from the reservoir 1, through the duct 3 to the chamber 2 up to a level dependent upon the angel of tilt. In Fig. 3 the container has been turned back to the upright position from which it can be tilted anti-clockwise to pour liquid from the chamber 2 through the mouth 4, as shown by Fig. 8.

The container shown by Figs. 9 to 12 has a tubular rotary valve plug 19 and in this embodiment the duct 3 serves only for transfer of air. Liquid flow is controlled by turning the valve plug 19 which has two ports 20 and 21 diametrally opposed respectively above and below an inclined partition 22 across the bore of the valve plug 19.

In Fig. 9 the container is upright and closed. In Fig. 10 the container has been tilted anti-clockwise and the valve plug 19 turned to register its port 21 with the port 17 of the chamber 2 into

which liquid flows from the reservoir 1 through the lower part of the bore of the valve plug 19 which can be turned to regulate, by the extent of register of the ports 21 and 17, the rate and quantity of liquid flow into the chamber. The level of liquid admitted to the chamber 2 can also be adjusted by the angle of tilt of the container.

In Fig. 11 the valve plug 19 is closed and the container upright. By turning the valve plug 19 to bring its port 20 into register with the chamber port 17, liquid can be dispensed by pouring through the mouth 4 as the container is tilted anti-clockwise as shown in Fig. 12.

Instead of a rotary valve plug, a sliding valve plug may be used, for example a plug having a peripheral sealing rib to fit in alternative sealing grooves in the wall of the mouth of the container so that the plug can be moved with a snap action to change engagement of its sealing rib from one groove to another. Such a sliding valve plug may have one or more ports for alterantive registration with the chambr port and may also be rotatable so that variable obturation of the chamber port may be effected.

In all the embodiments illustrated the transfer duct 3 opens from the upper part of the reservoir 1 so that, by tilting the container, all the reservoir contents can be transferred to the chamber 2.

As can be seen, the transfer duct 3 opens from the reservoir 1 at an outlet point 23, which, by suitable tilting of the container, can be brought to the lowest point of the reservoir 1 to drain the last drop of the reservoir contents into the chamber 2.

Even in the embodiment of Figs. 9 to 12, in which the tubular rotary valve plug 19 is normally used for transferring the reservoir contents to the chamber 2, the outlet point 23 is so located that the duct 3 can be used to empty the reservoir 1 completely.

Claims

1. A liquid dispensing container comprising, as a single moulding, a reservoir and a measuring chamber connected by a fluid transfer duct so that, by appropriate successive tilting movements of the container, liquid can be transferred from the reservoir to the chamber and can then be dispensed by pouring, in which the container has a single mouth, for filling and dispensing, the reservoir has a throat in alignment with the container mouth and a plug inserted through the mouth into the throat controls fluid communication through the throat between the reservoir and the chamber.

2. A container according to claim 1, in which the plug permanently closes the throat to prevent any passage of fluid therethrough.

3. A container according to claim 1 or 2, in which the plug is a valve which, according to its position, regulates passage of fluid between the reservoir and the chamber and between the chamber and the mouth.

4. A container according to claim 3 as appendant to claim 2, in which the valve plug is cup-shaped, closes the throat and has a side-wall port which, by turning of the valve plug, can be brought into and out of register with a port leading from the chamber to the container mouth.

5. A container according to claim 3 as appendant to claim 1, in which the valve plug is tubular and has two side-wall ports, respectively above and below a partition across the bore of the valve plug, so that by turning of the valve plug a port of the chamber can be placed in communication, through one or the other of the valve ports, with either the reservoir or the mouth of the container.

6. A container substantially as described and shown by Figs. 1 to 4, Figs. 5 to 8 or Figs. 9 to 12 of the accompanying drawings.

Printed for Her Majesty's Stationery Office by the Courier Press, Leamington Spa, 1983. Published by the Patent Office, 25 Southampton Buildings, London, WC2A 1AY, from which copies may be obtained